APPARATUS FOR SWITCHING DATA IN HIGH-SPEED NETWORKS AND METHOD OF OPERATION

ABSTRACT OF THE DISCLOSURE

A packet switch for switching cells comprising fixed-size data packets. The packet switch comprises: 1) N input ports for receiving and storing cells in input queues; 2) N output ports for receiving and storing cells from the N input ports in output queues; 3) a switch fabric for transferring the cells from the N input ports to the N output ports, the switch fabric comprising an internally buffered crossbar having NxN internal buffers, wherein each internal buffer is associated with a crosspoint of one of the N input ports and one of the N output ports; and 4) a scheduling controller for selecting a first one of a plurality of queued head-of-line (HOL) cells from the input queues to be transmitted to a first one of the NxN internal buffers according to a fair queuing algorithm in which each of the queued HOL cells is allocated a weight of R_{ij} and wherein the scheduling controller selects a first one of a plurality of HOL cells buffered in a second one of the NxN internal buffers to be transmitted to a first one of the output queues according to a fair queuing algorithm in which each of the internally buffered HOL cells is allocated a weight of R_{ij}.